

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte JERRY R. SMITH

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Appeal No. 96-2515  
Application 08/037,567<sup>1</sup>

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ON BRIEF

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Before URYNOWICZ, JERRY SMITH and BARRETT, Administrative Patent Judges.

URYNOWICZ, Administrative Patent Judge.

DECISION ON APPEAL

This appeal is from the final rejection of claims 1-7 and 9-20. The examiner has indicated that claim 8 would be allowable if rewritten in independent form.

The invention pertains to a transducer device for the ear. Claim 1 is illustrative and reads as

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<sup>1</sup> Application for patent filed March 25, 1993.

follows:

1. A transducer device operative to permit two-way communication between a user and another party, said transducer device adapted to be placed proximately to the external auditory canal of a user's ear in order for the user to interface with communications apparatus and operative to produce audible output in response to input signals received from said communications apparatus and operative to produced output signals in response to audible input for transmission by said communications apparatus, comprising:

(a) a housing sized and configured to be positioned in a mounted state at a location proximately to the external auditory canal of the user's ear;

(b) a speaker element disposed in said housing in communication with said communications apparatus, said speaker element operative to receive input signals and produce the audible output in response thereto;

(c) a microphone element disposed in said housing in communication with said communications apparatus, said microphone element oriented proximely to the ear when in the mounted state and operative to receive audible input from a user and produce output signals in response thereto; and

(d) isolation means for acoustically isolating said microphone element sufficiently from said speaker element such that the audible output from said speaker element does not create feedback to said microphone element, said transducer device thereby operative to permit two-way communication between a user and another party.

The references relied upon by the examiner are:

Konomi (Konomi '428)	4,516,428	May 14, 1985
Konomi (Konomi '867)	4,588,867	May 13, 1986
Moseley	5,001,763	Mar. 19, 1991

The appealed claims stand rejected as follows:

1. Claims 1-3, 7, 9-14 and 16-20 are rejected under 35U.S.C. § 102(b) as anticipated by

Konomi '867.

2. Claim 15 is rejected under 35 U.S.C. § 102(b) as anticipated by Moseley.
3. Claims 1-4 are rejected under 35 U.S.C. § 102(b) as anticipated by Konomi '428.
4. Claims 4-6 are rejected under 35 U.S.C. § 103 as unpatentable over Konomi '867 in view of Konomi '428.

The respective positions of the examiner and the appellant with regard to the propriety of these rejections are set forth in the final rejection (Paper No. 8 1/2) and the examiner's answer and supplemental answer (Paper Nos. 14 and 16, respectively) and the appellant's brief (Paper No. 13) and reply brief (Paper No. 15).

#### Appellant's Invention

Appellant discloses a speaker and a microphone disposed within a housing to be positioned at the external auditory canal of a user's ear. The speaker receives input signals from communications apparatus and produces an audible output in response thereto. The microphone receives audible input from the user and produces output signals which may be transmitted by the communications apparatus. The microphone and the speaker are acoustically isolated from one another such that the audible output from the speaker element does not create feedback to the microphone.

#### The Rejection of Claims 1-3, 7, 9-14 and 16-20

##### under 35 U.S.C. § 102(b) over Konomi '867

At page 6 of its brief, appellant states that independent claims 1 and 16 fall. Considered with

the fact that these claims are not specifically argued in the brief, the statement is taken to mean that the examiner's final rejection of these claims is not challenged on appeal. Accordingly, the rejection of claims 1 and 16 is sustained. Otherwise, appellant contends that the final rejection of his remaining claims should not be sustained.

With respect to claim 2, which depends from claim 1, appellant argues that Konomi '867 does not disclose an acoustical dampening material between the speaker element and the microphone element. We are not persuaded by this argument. In Fig. 5, Konomi shows an ear microphone with at least the left vertical portion of dampening material 15, and dampening material 4, between speaker element 9 and microphone element 2, 3. In a further embodiment, Fig. 6, Konomi shows dampening material 15 between speaker element 9 and microphone element 2, 3.

With respect to claims 9 and 17, which depend from claims 1 and 16, respectively, appellant asserts that Konomi '867 does not have an acoustic guide associated with the microphone element. We disagree. We agree with the examiner that portion 2c of the ear microphone acts as an acoustic guide, and it is evident that, as part of the ear microphone, it is associated with microphone element 3. This guide inherently directs sound from the inner ear. Because the examiner relies on portion 2c, appellant's sole argument to the effect that portion 2b is not an acoustic guide is not relevant.

We are also of the opinion that Konomi's pickup piece 2 is an acoustic guide. Speech of the wearer is conducted to piece 2 as vibration which reaches microphone element 3 (column 3, lines 9-16).

It is appellant's position that Konomi '867 does not teach first and second acoustic guides that are coaxial with one another as recited in dependent claim 11. Appellant contends, without elaboration, that while Figs. 5 and 6 of the reference may disclose first and second acoustic guides, these guides are not coaxial. This is not persuasive. For example, in Fig. 5 guide 6 is within guide 2c, and the two guides are clearly coaxial.

Concerning claim 13, we agree with the examiner that Konomi's waveguides have portions thereof oriented orthogonally with respect to one another. Although the acoustic guides 2c and 6 in Fig. 5 of the reference are not themselves orthogonal, the end face or portion of guide 6 at 6c is orthogonal to guide 2c along its axis.

With respect to claims 14 and 20, appellant contends that the language of these claims is not met by Fig. 5 of Konomi because the claims require that the guides be parallel, and guides 2b and 6 of Konomi converge, and because the guides do not have outer portions in transverse planes. This contention is not persuasive because guides 6 and 2c of the reference are parallel in the same sense that appellant's guides 102 and 104 of its Fig. 5 are parallel. Furthermore, the guide openings at the left ends of the guides are in "different transverse planes" as recited in claims 14 and 20.

Claims 3, 7, 10, 12, 18 and 19 are not separately argued and fall with claims 1, 2, 9, 11, 13, 14, 16, 17 and 20.

The Rejection of Claim 15 under 35 U.S.C. § 102(b)  
over Moseley

With respect to this rejection, appellant argues that Moseley does not teach that the input transducer element 34 (microphone) located within the earphone housing 32 is capable of receiving audio input from the user, and that the primary audio output vector and the primary audio input vector are oppositely directed.

We will not sustain this rejection. Appellant is correct that the primary audio output vector with respect to the output transducer 36 of Moseley is directed toward the user's ear and that the primary audio input vector with respect to the input transducer 34 is likewise directed toward the user's ear. At column 5, lines 41-43, Moseley discloses that the inside edges of the hollowed pole center has smooth conically expanding sides 62 to direct the acoustical signal source to the input diaphragm.

Although we will not sustain the rejection for the reason given above, we are not persuaded by the first of appellant's two arguments. The first argument is not commensurate in scope with claim 15. In paragraph (c), the claim recites "said microphone element oriented proximately to the ear when in the mounted state and operative to receive audible input and produce output signals in response thereto,". The claim does not require that the audible input is from the user. The quoted language, above, is met by Moseley's teaching with respect to its disclosed earphones that a first electroacoustic transducer may be an input transducer for converting sound waves to electric waves. See, for example, column 3, lines 17-22 and

input transducer 34 of Fig. 2A.

The Rejection of Claims 1-4 under 35 U.S.C. § 102  
as Anticipated by Konomi '428

It is the examiner's position that these claims are anticipated by the embodiment illustrated in Fig. 5 of Konomi '428.

Appellant argues with respect to dependent claim 2 that the '428 patent does not teach a layer of acoustic dampening material interposed between the speaker element and the microphone element. As to dependent claim 4, appellant contends that, as illustrated by its various embodiments such as in Figs. 3 and 5, the primary audio output vector and the primary audio input vector are diametrically opposed. Appellant asserts that due to the cantilevered orientation of the acoustic guide G associated with speaker E in Fig. 5 of Konomi '428, the feature recited in claim 4 indicating the vectors are in opposite directions is not taught by the reference.

We disagree with appellant's argument and will sustain this rejection of claims 1-4. With respect to dependent claim 2, in Fig. 5 of the '428 patent, Konomi shows a layer of acoustic dampening material comprising a vertical layer comprising the left side of dampening material F that is interposed between the speaker element E and the microphone A.

As to claim 4, there is no recitation that the vectors are diametrically opposed; the claim merely indicates that the microphone element and the speaker element are oriented so that their vectors are in

opposite directions. The microphone and speaker elements A and E, respectively, are clearly oriented in Fig. 5 of the '428 patent so that their vectors are in opposite directions. The fact that the axis of the acoustic guide G of the reference is oriented to be slightly angular with respect to the direction of the microphone input vector and that the guide causes the output vector of the speaker to assume a slightly modified direction is not relevant. However, even if claim 4 required that the input vector and the output vector must be oppositely directed, the vectors of the reference are so oriented in that the output vector is directed toward the inner ear of the wearer and the input vector is directed away from the inner ear.

Claim 3 is not separately argued and falls with claims 1, 2 and 4.

The Rejection of Claims 4-6 under 35 U.S.C. §103

as Unpatentable over Konomi '867 in view of Konomi '824

The examiner's position with respect to this rejection is that it would have been obvious for one of ordinary skill in the art to substitute microphone apparatus A, Fig. 3A, of Konomi '824 for the microphone apparatus 3 in the earphone of Fig. 5 of Konomi '867.

With respect to claim 4, appellant argues that Konomi '867 does not teach the structure of the microphone and the speaker elements having vectors in opposite directions and that, from reading Konomi '428, it is not clear what the actual orientation of the input vector of microphone A is.

Appellant contends, even assuming that this input vector is directed oppositely from the output vector of the speaker element, it would not have been obvious to substitute the electrostatic ear microphone A



of Konomi '428 for the piezoelectric microphone 3 in Konomi '867. It is asserted that the input vector of piezoelectric device 3 is not in the opposite direction of the output vector for speaker 9 in Konomi '867 and it would destroy this teaching to substitute for piezoelectric piece 3, a microphone element having both a different construction entirely and a different input vector orientation.

With respect to claim 6, appellant argues to the effect that none of the damping means or isolation material of either reference is in contact with piezoelectric material 3.

We will sustain this rejection of claims 4-6. With respect to claim 4, it is considered apparent that the microphone A and speaker element 9 would have vectors in opposite directions. Speaker 9 of Konomi '867 has its output vector in the direction of the user's ear, to the left as Fig. 5 is viewed. In contrast microphone element A of Konomi '428 has its primary input vector away from the user's ear. This is clear from the fact that vibrating electrode 6 is perpendicular to the speech of the wearer, which is conducted to pickup element B and is converted into electrical signals by microphone A.

We do not agree with appellant that combining the teachings of the two references would have been destructive and unobvious. The Konomi '428 patent alone teaches that microphone apparatus A (Fig. 3A) for use in the earphone of Fig. 5 could be substituted for dissimilar microphone apparatus in the similarly constructed earphone of Fig. 1 to produce an operative device. The earphone of Fig. 1 of Konomi '428 is identical to the earphone illustrated in Fig. 5 of Konomi '867, and the

teaching of Konomi '428 in its Figs. 1 and 5 would have suggested to one of ordinary skill in the art to substitute microphone apparatus A of the reference for the microphone apparatus 3 in the earphone of Fig. 5 of Konomi '867.

Claim 6 recites that the microphone element contacts the layer of acoustical damping material. Appellant argues the only damping material in the embodiments of Konomi '867 are elements 4, 6, 7 and 17 and none of the embodiments shows piezoelectric element 3 in contact with any of them. The examiner's position is that, with respect to Fig. 6, pickup piece 2 and piezoelectric element 3 comprise a microphone element that contacts damping layer 15. Appellant has not addressed the examiner's position, and an inspection of Fig. 6 shows that microphone element 2,3 contacts acoustical damping material 14 and 15.

Claim 5 is not separately argued and it falls with claims 4 and 6.

#### Summary

In summary:

- a) the decision of the examiner to reject claims 1-3, 7, 9-14 and 16-21 under 35 U.S.C § 102(b) as anticipated by Konomi '867 is sustained.
- b) the decision of the examiner to reject claims 1- 4 under 35 U.S.C. § 102(b) as anticipated by Konomi '428 is sustained.
- c) the decision of the examiner to reject claims 4-6 under 35 U.S.C. § 103 as unpatentable

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over Konomi '867 in view of Konomi '428 is sustained.

d) the decision of the examiner to reject claim 15 under 35 U.S.C. § 102(b) as anticipated by Moseley is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

STANLEY M. URYNOWICZ  
Administrative Patent Judge

JERRY SMITH  
Administrative Patent Judge

LEE BARRETT  
Administrative Patent Judge

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